Complete Summary

TITLE

Pneumonia: percent of immunocompetent intensive care unit (ICU) patients with community-acquired pneumonia who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines.

SOURCE(S)

Specifications manual for national hospital inpatient quality measures, version 3.0b. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct. various p.

Measure Domain

PRIMARY MEASURE DOMAIN

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure* is used to assess the percent of immunocompetent intensive care unit (ICU) patients with community-acquired pneumonia (CAP) who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines.

*This is a Joint Commission only measure.

RATIONALE

The current North American antibiotic guidelines for community-acquired pneumonia (CAP) in immunocompetent patients are from the Centers for Disease Control and Prevention (CDC), the Infectious Diseases Society of America (IDSA), the Canadian Infectious Disease Society/Canadian Thoracic Society (CIDS/CTS),

and the American Thoracic Society (ATS). All four reflect that *Streptococcus pneumoniae* is the most common cause of CAP, that treatment that covers "atypical" pathogens (e.g., Legionella species, *Chlamydia pneumoniae*, *Mycoplasma pneumoniae*) can be associated with improved survival, and that the prevalence of antibiotic-resistant *S. pneumoniae* is increasing.

The Centers for Medicare & Medicaid Services (CMS) convened a conference of guideline authors, including Julie Gerberding, MD (CDC), John Bartlett, MD (IDSA), Ronald Grossman, MD (CIDS/CTS), and Michael Niederman, MD (ATS), to reach consensus on the antibiotic regimens that could be considered consistent with all four organizations' guidelines. These regimens are reflected in this measure, and in the Pneumonia Antibiotic Consensus Recommendation located directly behind the measure information form (refer to the original measure documentation for details).

PRIMARY CLINICAL COMPONENT

Pneumonia; antibiotic selection

DENOMINATOR DESCRIPTION

Intensive care unit (ICU) pneumonia patients, 18 years of age and older (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

NUMERATOR DESCRIPTION

Intensive care unit (ICU) pneumonia patients who received an initial antibiotic regimen* consistent with current guidelines during the first 24 hours of their hospitalization

*Refer to the original measure documentation for specific antibiotic regimens.

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
- A formal consensus procedure involving experts in relevant clinical, methodological, and organizational sciences
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

NATIONAL GUIDELINE CLEARINGHOUSE LINK

- Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults.

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Use of this measure to improve performance
Variation in quality for the performance measured

EVIDENCE SUPPORTING NEED FOR THE MEASURE

Butler JC, Hofmann J, Cetron MS, Elliott JA, Facklam RR, Breiman RF. The continued emergence of drug-resistant Streptococcus pneumoniae in the United States: an update from the Centers for Disease Control and Prevention's Pneumococcal Sentinel Surveillance System. J Infect Dis1996 Nov;174(5):986-93. PubMed

Fine MJ, Smith MA, Carson CA, Mutha SS, Sankey SS, Weissfeld LA, Kapoor WN. Prognosis and outcomes of patients with community-acquired pneumonia. A meta-analysis. JAMA1996 Jan 10;275(2):134-41. PubMed

Gleason PP, Meehan TP, Fine JM, Galusha DH, Fine MJ. Associations between initial antimicrobial therapy and medical outcomes for hospitalized elderly patients with pneumonia. Arch Intern Med1999 Nov 22;159(21):2562-72. PubMed

Heffelfinger JD, Dowell SF, Jorgensen JH, Klugman KP, Mabry LR, Musher DM, Plouffe JF, Rakowsky A, Schuchat A, Whitney CG. Management of community-acquired pneumonia in the era of pneumococcal resistance: a report from the Drug-Resistant Streptococcus pneumoniae Therapeutic Working Group. Arch Intern Med2000 May 22;160(10):1399-408. PubMed

Houck PM, MacLehose RF, Niederman MS, Lowery JK. Empiric antibiotic therapy and mortality among Medicare pneumonia inpatients in 10 western states: 1993, 1995, and 1997. Chest2001 May;119(5):1420-6. PubMed

Mandell LA, Marrie TJ, Grossman RF, Chow AW, Hyland RH. Canadian guidelines for the initial management of community-acquired pneumonia: an evidence-based update by the Canadian Infectious Diseases Society and the Canadian Thoracic Society. The Canadian Community-Acquired Pneumonia Working Group. Clin Infect Dis2000 Aug;31(2):383-421. PubMed

Mandell LA, Wunderink RG, Anzueto A, Bartlett JG, Campbell GD, Dean NC, Dowell SF, File TM Jr, Musher DM, Niederman MS, Torres A, Whitney CG. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. Clin Infect Dis2007 Mar 1;44 Suppl 2:S27-72. [335 references] PubMed

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

Accreditation
Collaborative inter-organizational quality improvement
Internal quality improvement

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Age greater than or equal to 18 years

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

In 2004, 60,207 people died of pneumonia. There were an estimated 651,000 hospital discharges in males (44.9 per 10,000) and 717,000 discharges in females (47.7 per 10,000) all attributable to pneumonia in 2005. The highest pneumonia discharge rate that year was seen in those 65 and over at 221.3 per 10,000.

EVIDENCE FOR INCIDENCE/PREVALENCE

National Center for Health Statistics. National hospital discharge survey, 1988, 2004 and 2005 [unpublished].

National Center for Health Statistics. Report of final mortality statistics, 1979-2003. National vital statistics report, preliminary data for 2004. Hyattsville (MD): National Center for Health Statistics;

ASSOCIATION WITH VULNERABLE POPULATIONS

See the "Burden of Illness" field.

BURDEN OF ILLNESS

In the United States (U.S.), pneumonia is the sixth most common cause of death. From 1979-1994, the overall rates of death due to pneumonia and influenza increased by 59%. Much of this increase is due to a greater population of persons aged 65 years or older, and a changing epidemiology of pneumonia, including a greater proportion of the population with underlying medical conditions at increased risk of respiratory infection.

See also the "Incidence/Prevalence" field.

EVIDENCE FOR BURDEN OF ILLNESS

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis2000 Aug;31(2):347-82. [218 references] PubMed

UTILIZATION

Pneumonia accounts for nearly 600,000 Medicare patient hospitalizations utilizing more than 4.5 million inpatient days each year. In 1993, more than $3.5 billion was spent on inpatient care of Medicare patients with pneumonia. Pneumonia is also the principal reason for more than 500,000 emergency department visits by Medicare patients each year. The incidence of pneumonia increases with age, and more than 90 percent of deaths due to this condition are in the population aged 65 and older.

There are more than 1.1 million hospitalizations due to pneumonia each year in the U.S.

See also the "Incidence/Prevalence" field.

EVIDENCE FOR UTILIZATION

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis2000 Aug;31(2):347-82. [218 references] PubMed

Niederman MS, Mandell LA, Anzueto A, Bass JB, Broughton WA, Campbell GD, Dean N, File T, Fine MJ, Gross PA, Martinez F, Marrie TJ, Plouffe JF, Ramirez J, Sarosi GA, Torres A, Wilson R, Yu VL. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. Am J Respir Crit Care Med2001 Jun;163(7):1730-54. PubMed

COSTS

See the "Utilization" field.

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

Discharges, 18 years of age and older, with a principal diagnosis of pneumonia *or* a principal diagnosis of septicemia or respiratory failure (acute or chronic) *and* other diagnosis code of pneumonia who were patients in the intensive care unit (ICU)

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions
Discharges, 18 years of age and older, with an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code of pneumonia as defined in the appendices of the original measure documentation *or* ICD-9-CM Principal Diagnosis Code of septicemia or respiratory failure (acute or chronic) as defined in the appendices of the original measure documentation *and* an ICD-9-CM Other Diagnosis Code of pneumoniaÂ as defined in the appendices of the original measure documentation who were patients in the intensive care unit (ICU)

Exclusions

- Patients less than 18 years of age
- Patients who have a Length of Stay (LOS) greater than 120 days
- Patients with Cystic Fibrosis (as defined in the appendices of the original measure documentation)

- Patients who had no chest x-ray or computed tomography (CT) scan that indicated abnormal findings within 24 hours prior to hospital arrival or anytime during this hospitalization
- Patients with *Comfort Measures Only* documented on day of or day after arrival
- Patients enrolled in clinical trials
- Patients received as a transfer from the emergency department (ED) of another hospital
- Patients received as a transfer from an acute care facility where they were an inpatient or outpatient
- Patients received as a transfer from one distinct unit of the hospital to another distinct unit of the same hospital
- Patients received as a transfer from an ambulatory surgery center
- Patients who have no diagnosis of pneumonia either as the ED final diagnosis/impression or direct admission diagnosis/impression
- Pneumonia patients not in the ICU
- Patients with an *Identified Pathogen* as defined in the Data Dictionary
- Patients with *Healthcare Associated PN* as defined in the Data Dictionary
- Patients who are *Compromised* as defined in the Data Dictionary
- Patients discharged/transferred to another hospital for inpatient care on day of or day after arrival
- Patients who left against medical advice or discontinued care on day of or day after arrival
- Patients who expired on day of or day after arrival
- Patients discharged/transferred to a federal health care facility on day of or day after arrival
- Pneumonia patients with another suspected source of infection who did not receive an antibiotic regimen recommended for pneumonia, but did receive antibiotics within the first 24 hours of hospitalization

RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are equally eligible to appear in the numerator

DENOMINATOR (INDEX) EVENT

Clinical Condition
Institutionalization

DENOMINATOR TIME WINDOW

Time window brackets index event

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
Intensive care unit (ICU) pneumonia patients who received an initial antibiotic regimen* consistent with current guidelines during the first 24 hours of their hospitalization

*Refer to the original measure documentation for specific antibiotic regimens.

Exclusions
None

MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

NUMERATOR TIME WINDOW

Fixed time period

DATA SOURCE

Administrative data
Medical record

LEVEL OF DETERMINATION OF QUALITY

Individual Case

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a higher score

ALLOWANCE FOR PATIENT FACTORS

Unspecified

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Unspecified

Identifying Information

ORIGINAL TITLE

PN-6a: initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients - intensive care unit (ICU) patients.

MEASURE COLLECTION

National Hospital Inpatient Quality Measures

MEASURE SET NAME

Pneumonia

SUBMITTER

Centers for Medicare & Medicaid Services
Joint Commission, The

DEVELOPER

Centers for Medicare & Medicaid Services/The Joint Commission

FUNDING SOURCE(S)

All external funding for measure development has been received and used in full compliance with The Joint Commission's Corporate Sponsorship policies, which are available upon written request to The Joint Commission.

COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE

The measure was developed and continues to be maintained in conjunction with a multi-disciplinary Technical Expert Panel.

FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST

Expert panel members have made full disclosure of relevant financial and conflict of interest information in accordance with the Joint Commission's Conflict of Interest policies, copies of which are available upon written request to The Joint Commission.

ENDORSER

National Quality Forum

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2004 Nov

REVISION DATE

2009 Oct

MEASURE STATUS

This is the current release of the measure.

This measure updates a previous version: Specifications manual for national hospital quality measures, version 2.5b. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2008 Oct. various p.

SOURCE(S)

Specifications manual for national hospital inpatient quality measures, version 3.0b. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct. various p.

MEASURE AVAILABILITY

The individual measure, "PN-6a: Initial Antibiotic Selection for Community-Acquired Pneumonia (CAP) in Immunocompetent Patients - Intensive Care Unit (ICU) Patients," is published in "Specifications Manual for National Hospital Inpatient Quality Measures." This document is available from The Joint Commission Web site. Information is also available from the Centers for Medicare & Medicaid Services (CMS) Web site. Check The Joint Commission Web site and CMS Web site regularly for the most recent version of the specifications manual and for the applicable dates of discharge.

COMPANION DOCUMENTS

The following are available:

- A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the CMS CART Web site. Supporting documentation is also available. For more information, e-mail CMS PROINQUIRIES at proinquiries@cms.hhs.gov.
- The Joint Commission. A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace

(IL): The Joint Commission; 40 p. This document is available from The Joint Commission Web site.

- The Joint Commission. Attributes of core performance measures and associated evaluation criteria. Oakbrook Terrace (IL): The Joint Commission; 5 p. This document is available from The Joint Commission Web site.

NQMC STATUS

This NQMC summary was originally completed by ECRI on October 24, 2005. This NQMC summary was updated by ECRI Institute on April 10, 2007 and October 26, 2007. The Joint Commission informed NQMC that this measure was updated on August 29, 2008 and provided an updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on November 11, 2008. The Joint Commission informed NQMC that this measure was updated again on October 1, 2009 and provided an updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on December 2, 2009.

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